

Note

Exchange engines are in part supplied with camshaft bearing intermediate stages and repair stages. In the event of repairs, install pertinent camshafts with reduced bearing dia. Also refer to table: Camshaft housing with 11 bearing points.

Camshaft housings with repair stages are available for camshafts with reground bearing journals. Also refer to table: Camshaft housing with 11 bearing points.

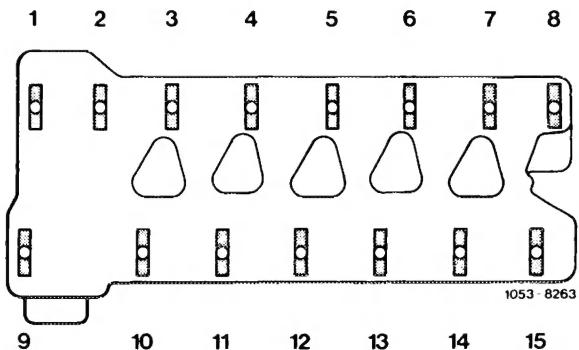
Camshaft housing with 15 bearing points

Bearing points	1, 9	2	3, 10, 11	4, 5, 12, 13	6, 7, 14, 15	8
Standard dimension	bearing dia. 38.016 38.000	50.066 50.050	50.016 50.000	51.519 51.500	53.019 53.000	54.019 54.000
	journal dia. 23.993 23.980	49.950 49.934	49.950 49.934	51.440 51.421	52.940 52.921	53.940 53.921
Intermediate stage -0.1 mm (exchange engines)	bearing dia. 49.966 49.950	49.916 49.900	51.419 51.400	52.919 52.900	53.919 53.900	
	journal dia. 49.850 49.834	49.850 49.834	51.340 51.321	52.840 52.821	53.840 53.821	
Repair stage 1 -0.25 mm	bearing dia. 49.816 49.800	49.765 49.750	51.269 51.250	52.769 52.750	53.769 53.750	
	journal dia. 49.700 49.684	49.700 49.684	51.190 51.171	52.690 52.671	53.690 53.671	
Repair stage 2 -0.50 mm	bearing dia. 49.566 49.550	49.516 49.500	51.019 51.000	52.519 52.500	53.519 53.500	
	journal dia. 49.450 49.434	49.450 49.434	50.940 50.921	52.440 52.421	53.440 53.421	
Camshaft bearing play	radial 0.057 0.124	0.100 0.132	0.050 0.082	0.060 0.098	0.060 0.098	0.060 0.098
	axial 0.050 0.120					
Sleeve for bearing a	OD 37.950 37.925	ID 24.013 24.000				

Combinations in the event of repairs

a) Camshaft housing with 15 bearing points intake-camshaft code number 25, 67 and 33 with 7 bearing journals.

Exhaust-camshaft code number 24, 30, 57 and 71 with 8 bearing journals.



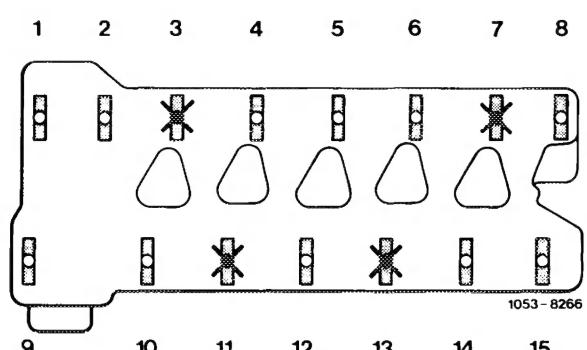
b) Camshaft housing with 15 bearing points, with bearing points 11 and 13 at intake end or 3 and 7 at exhaust end out of function.

Intake camshaft code number 74 and 91 with 5 bearing journals and intermediate stage or repair camshafts with reduced bearing dia.

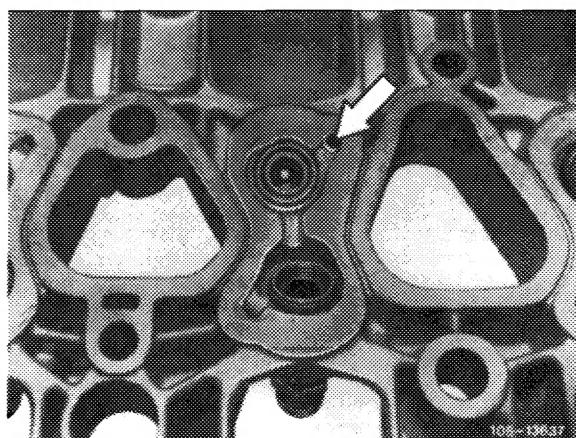
Exhaust camshaft code no. 78 and 95 with 6 bearing journals and intermediate stage or repair camshafts with reduced bearing dia.

In this case, the oil bores of bearing points 11 and 13 or 3 and 7 on removed camshaft housing must be closed.

For this purpose, cut threads M 6, approx. 10 mm deep from below into oil bores (arrow) and screw-in threaded plug 000 913 006 110 with sealing compound.



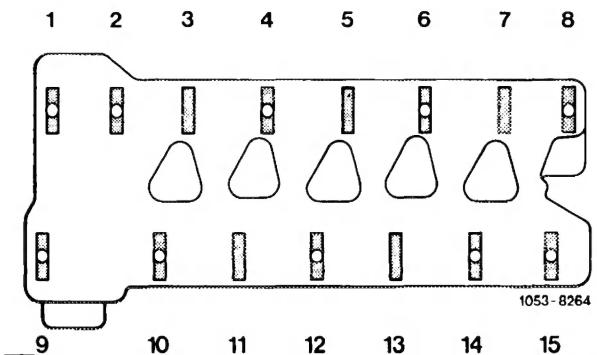
✗ close oil bores



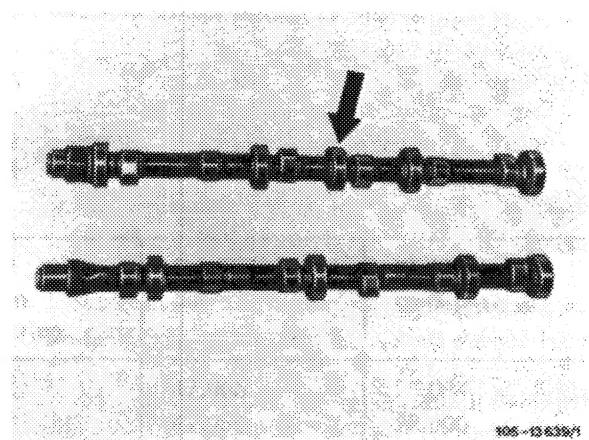
c) Camshaft housing with 15 bearing points, with bearing points 11 and 13 (intake end) or bearing points 3.5 and 7 (exhaust end) without oil supply.

Intake-camshaft code number 25, 67 and 33 with 7 bearing points, of which bearing points 11 and 13 with 1 mm machined off.

Exhaust-camshaft code number 24, 57, 71 and 30, of which bearing points 3, 5 and 7 machined off by 1 mm.



Exchange engines starting unit no. 464.130 are supplied in this version (c). When installing an exhaust camshaft with code number 78 and 95 into camshaft housing version c, machine 1 mm from bearing journal 5 (arrow).

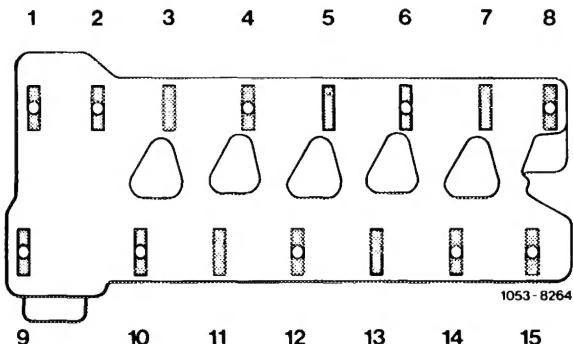


Camshaft housing with 15 bearing points of which 5 bearing points without oil bore

Bearing points	1, 9	2	3, 11	4, 12	5, 13	6, 14, 15	7	8	10	
Bearing points	Bearing dia.	38.016	50.066	51.0	51.519	52.5	53.019	54.0	54.019	50.016
		38.000	50.050		51.500		53.000		54.000	50.000
	Journal dia.	23.993	49.950		49.950		52.940		53.940	49.950
		23.980	49.934		49.934		52.921		53.921	49.934

This camshaft housing is not manufactured as an intermediate or repair stage.

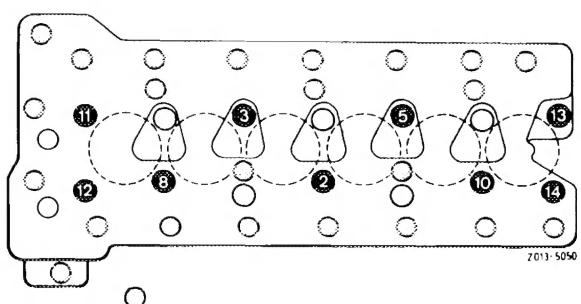
On this camshaft housing, the bearing points 3, 5, 7, 11 and 13 are without oil bore and their ID is 1 mm larger than the respective camshaft bearing journals. This camshaft housing can be used to install **all camshafts with normal dimension**.



This camshaft housing is attached together with cylinder head by means of 9 cylinder head bolts, M 12 x 145 mm (formerly M 12 x 150 mm), since the bolt head contact surfaces in camshaft housing were countersunk by 5 mm.

Attention!

On exchange engines starting unit number 496.861 (approx. starting October 1977) these 9 cylinder head bolts are installed with a length of 150 mm. Washers 5 mm thick part no. 186 990 09 40 are fitted to make sure that the thread lugs in cylinder crankcase are not forced off.



Camshaft housing with 11 bearing points, of which 1 bearing point without oil bore

Bearing points	1, 9	2	4, 12	5	6, 14, 15	8	10
Bearing dia.	38.016	50.066	51.519	52.5	53.019	54.019	50.016
	38.000	50.050	51.500		53.000	54.000	50.000
Journal dia.	23.993	49.950	51.440		52.940	53.940	49.950
	23.980	49.934	51.421		52.921	53.921	49.934

Intermediate stage — 0.1 mm (exchange engines only)

Camshaft housing part no. 110 010 20 36

Intake camshaft part no. 110 051 77 01

Exhaust camshaft part no. 110 051 98 01

Bearing dia.	49.966	51.419	52.5	52.919	53.919	49.916
	49.950	51.400		52.900	53.900	49.900
Journal dia.	49.850	51.340		52.840	53.840	49.850
	49.834	51.321		52.821	53.821	49.834

Repair stage 1 — 0.25 mm

Camshaft housing part no. 110 010 21 36

Intake camshaft part no. 110 051 75 01

Exhaust camshaft part no. 110 051 79 01

Bearing dia.	49.816	51.269	52.5	52.769	53.769	49.765
	49.800	51.250		52.750	53.750	49.750
Journal dia.	49.700	51.190		52.690	53.690	49.700
	49.684	51.171		52.671	53.671	49.684

Repair stage 2 — 0.50 mm

Camshaft housing part no. 110 010 22 36

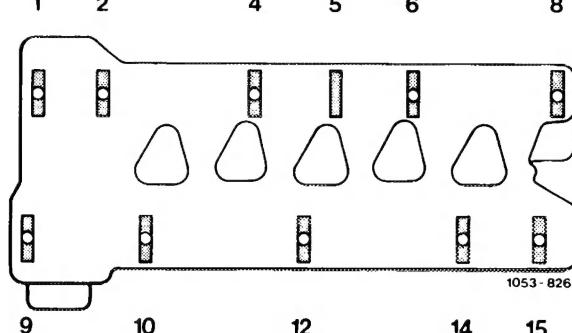
Intake camshaft part no. 110 051 76 01

Exhaust camshaft part no. 110 051 80 01

Bearing dia.	49.566	51.019	52.5	52.519	53.519	49.516
	49.550	51.000		52.500	53.500	49.500
Journal dia.	49.450	50.940		52.440	53.440	49.450
	49.434	50.921		52.421	53.421	49.434

On this camshaft housing bearing point 5 is without oil bore and its ID is 1 mm larger than the respective camshaft bearing journal.

This camshaft housing can be used to install camshaft without changes on bearing journals.



This camshaft housing is attached together with cylinder head by means of 9 cylinder head bolts M 12 x 145 (formerly M 12 x 150), since the bolt head contact surfaces in camshaft housing were countersunk by 5 mm.

Attention!

On exchange engines starting unit number 496.861 (approx. starting October 1977) these 9 cylinder head bolts are installed with a length of 150 mm. Washers 5 mm thick part no. 186 990 09 40 are fitted to make sure that the thread lugs in cylinder crankcase are not forced off.

